

FERN RIDGE DAM



FERN RIDGE DAM

- PROJECT INFORMATION
- RECENT DEVELOPMENTS
- PRE-EMERGENCY CONDITION
- INVESTIGATION
- REPAIRS

PROJECT INFORMATION

PROJECT INFORMATION

- **1942 - Project completed and pool filled.**
- **1965 - Crest elevation of dam raised 2 feet to provide additional 15,000 acre-feet of storage.**
- **1993 – Clearlake Road widened**
- **No History of Drain / Seepage Problems**

RECENT DEVELOPMENTS

RECENT DEVELOPMENTS



July 2002

Station 44+00

February 2003



RECENT DEVELOPMENTS

Station 20+00



Station 16+00

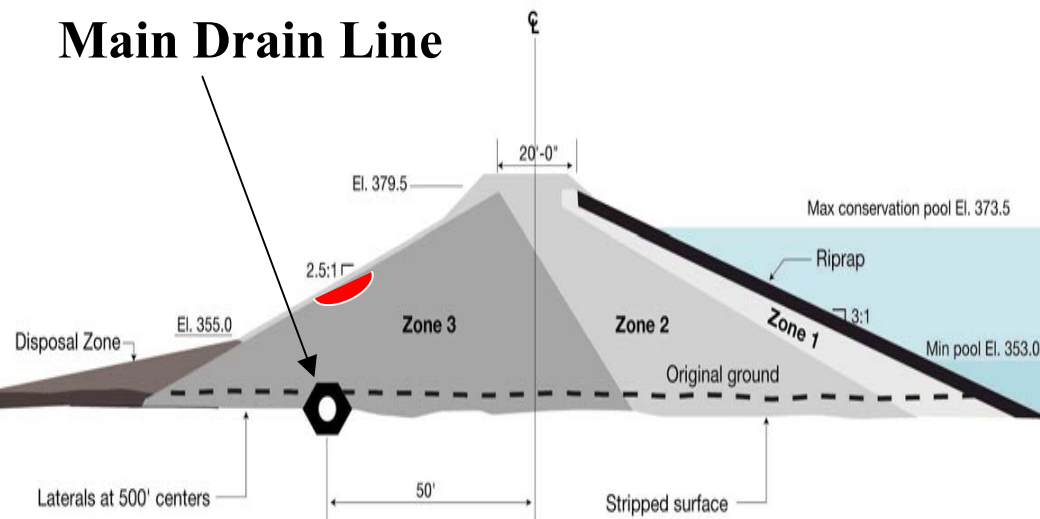
February 2003

RECENT DEVELOPMENTS

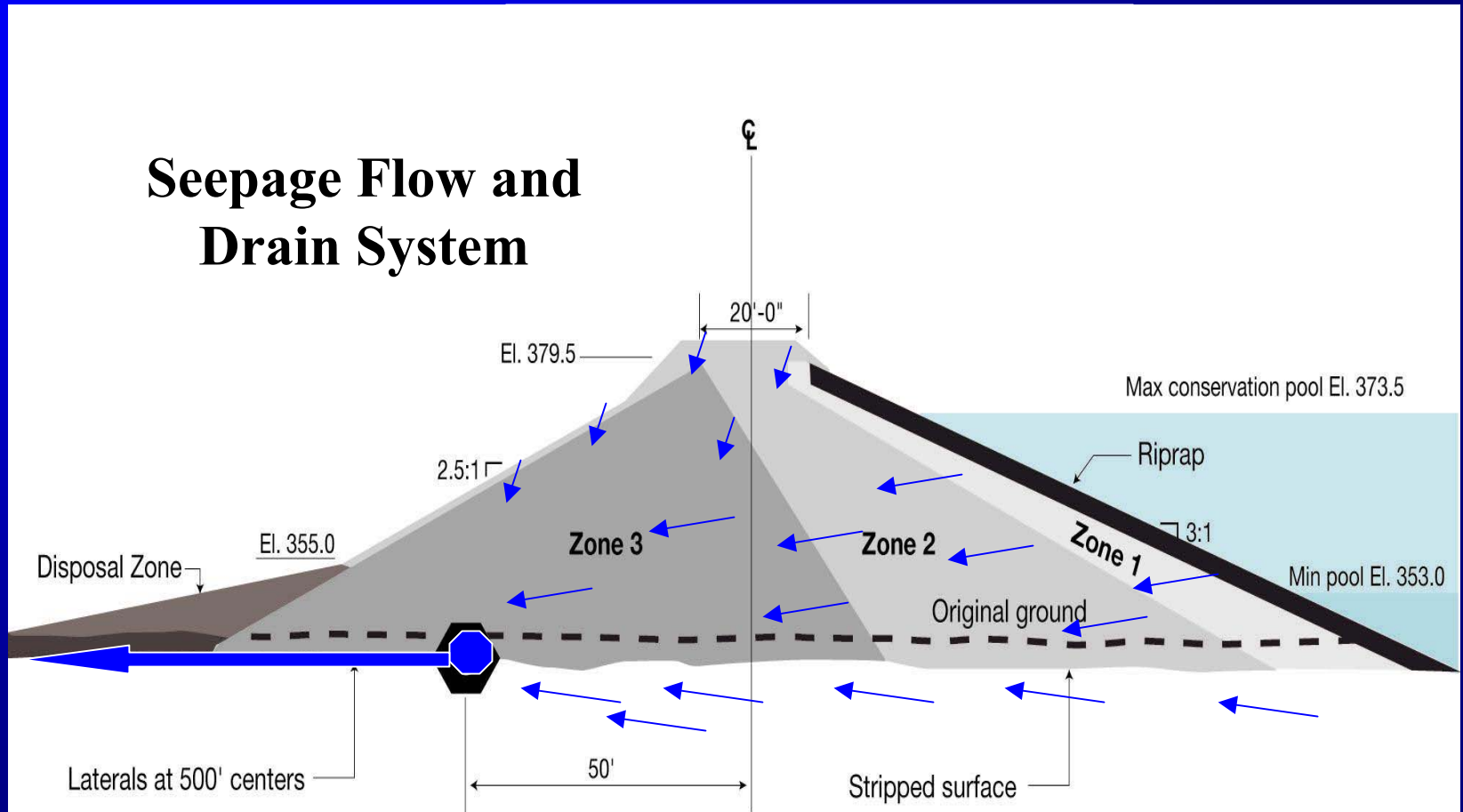
Location of Depressions



Main Drain Line



RECENT DEVELOPMENTS



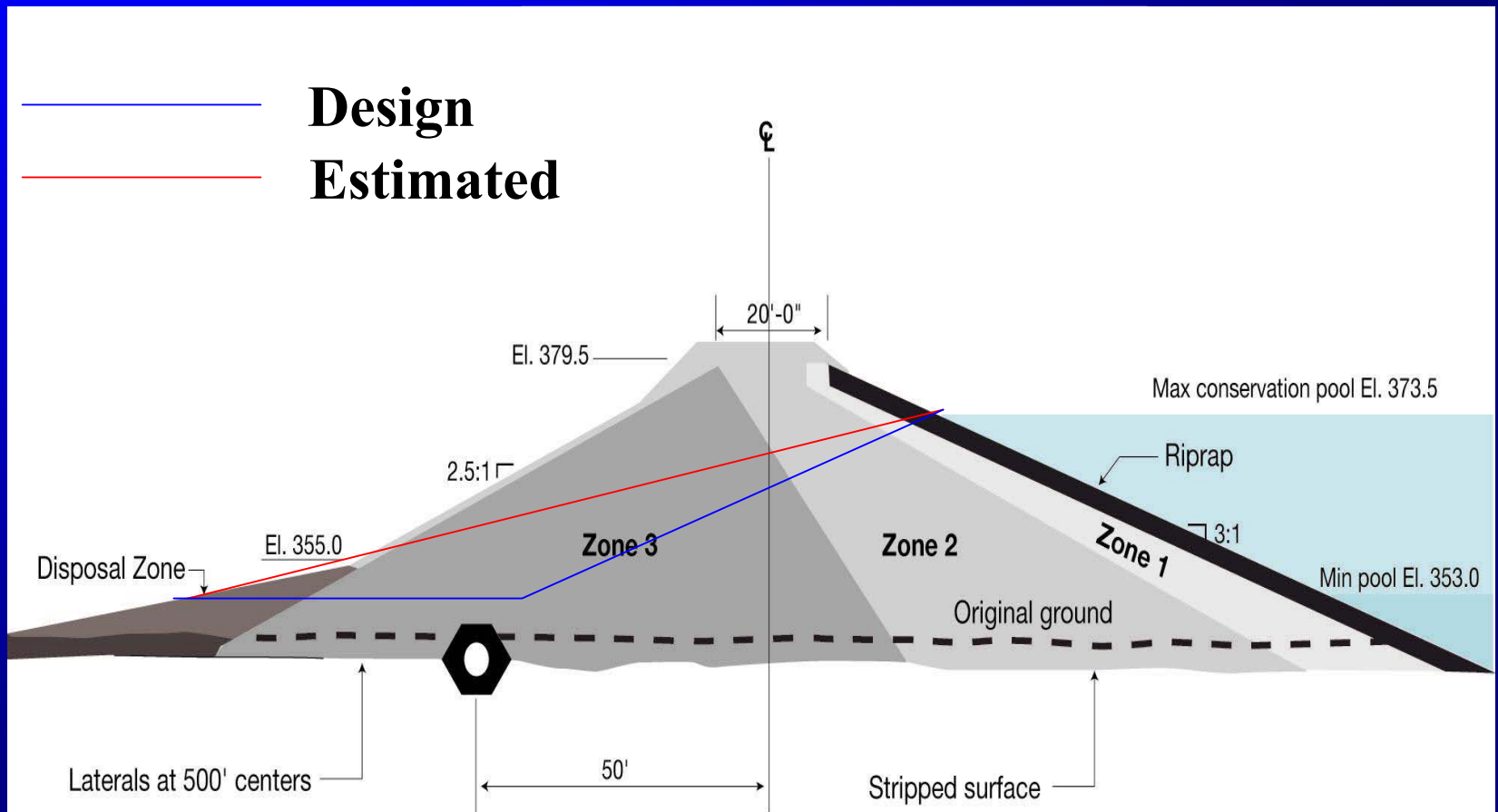
Existing Design

RECENT DEVELOPMENTS



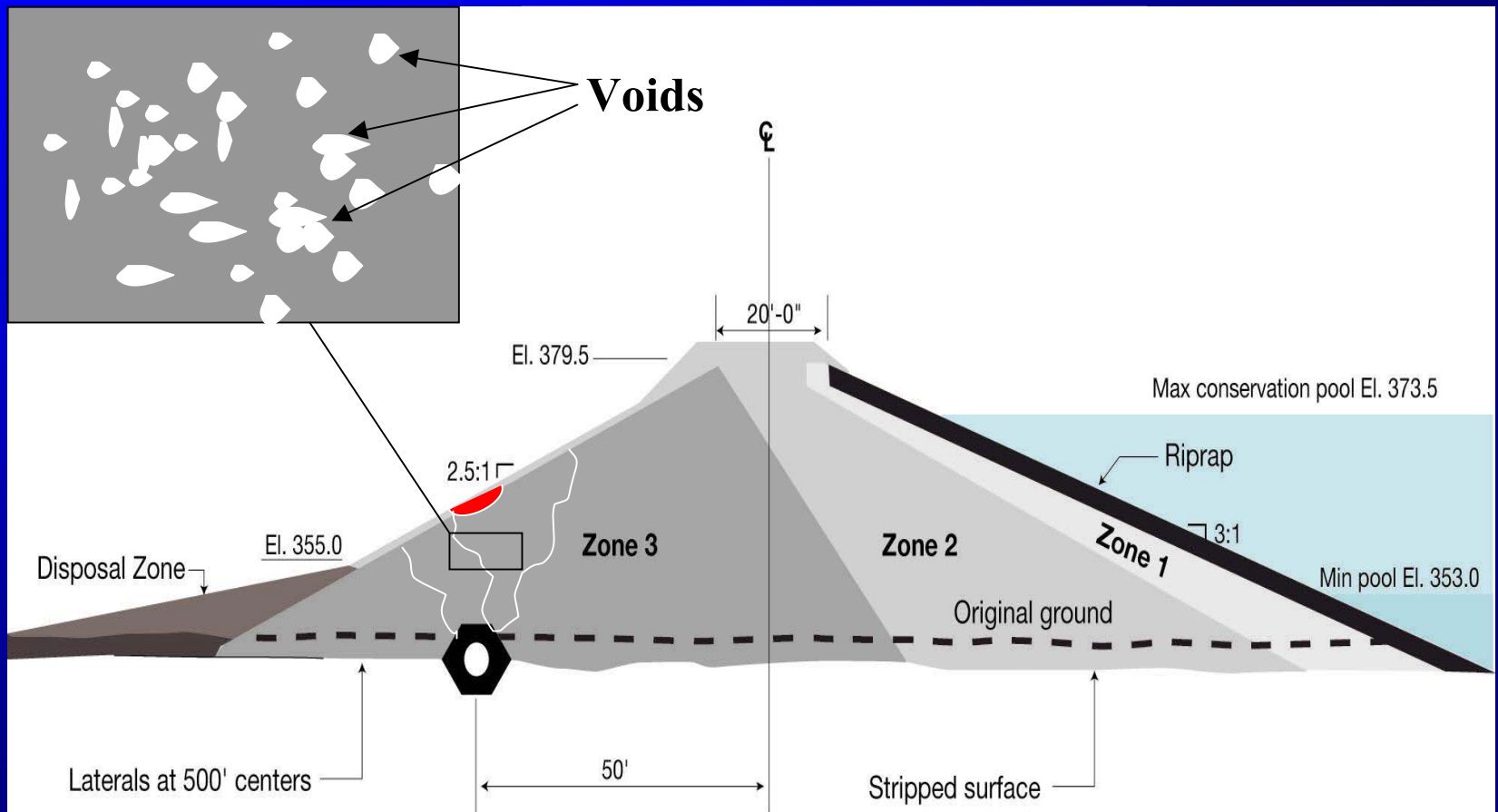
Location of Drain System

RECENT DEVELOPMENTS



Initial Seepage/Stability Analysis

RECENT DEVELOPMENTS



Initial Seepage/Stability Analysis

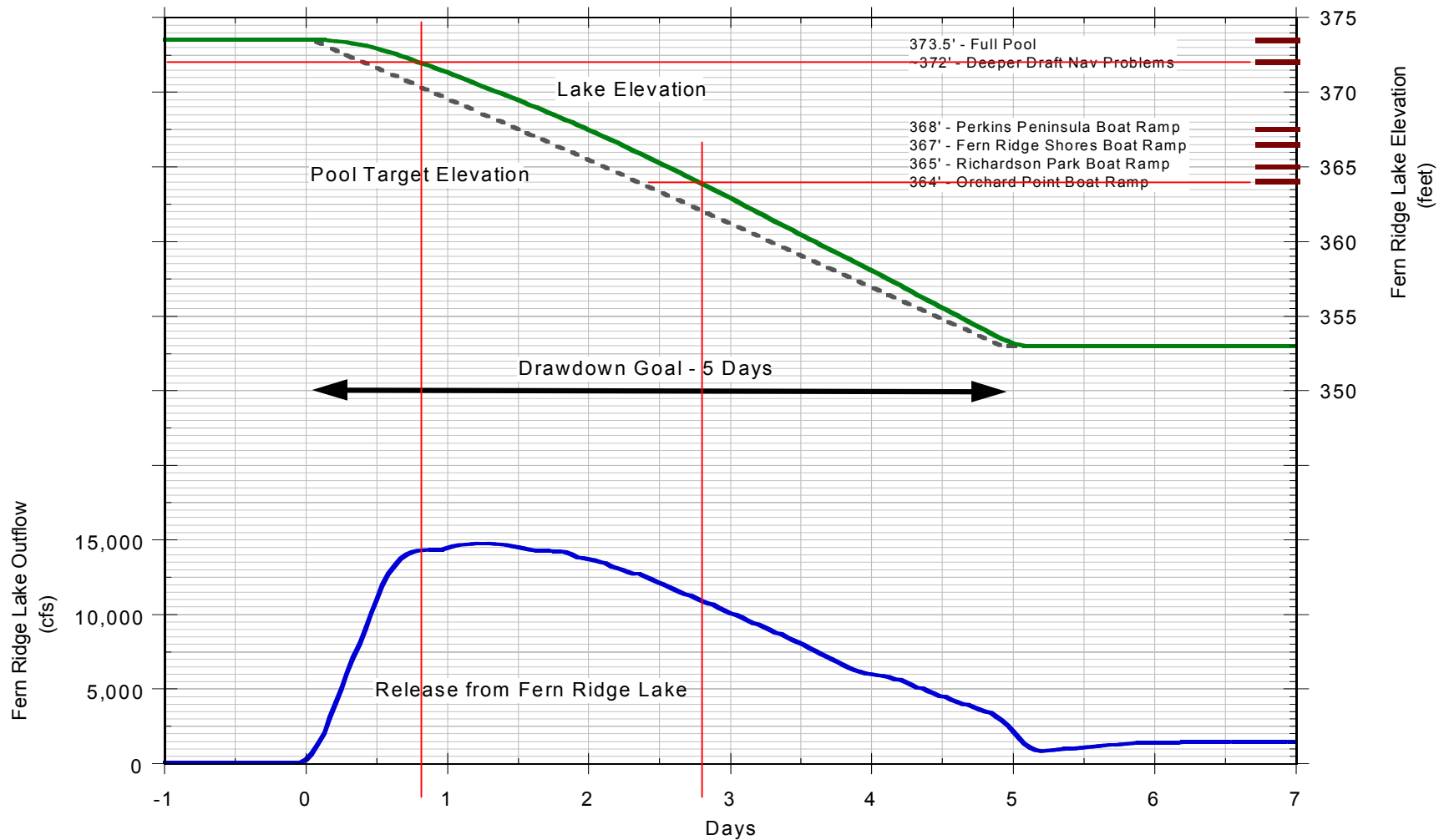
PRE-EMERGENCY CONDITION

PRE-EMERGENCY CONDITION

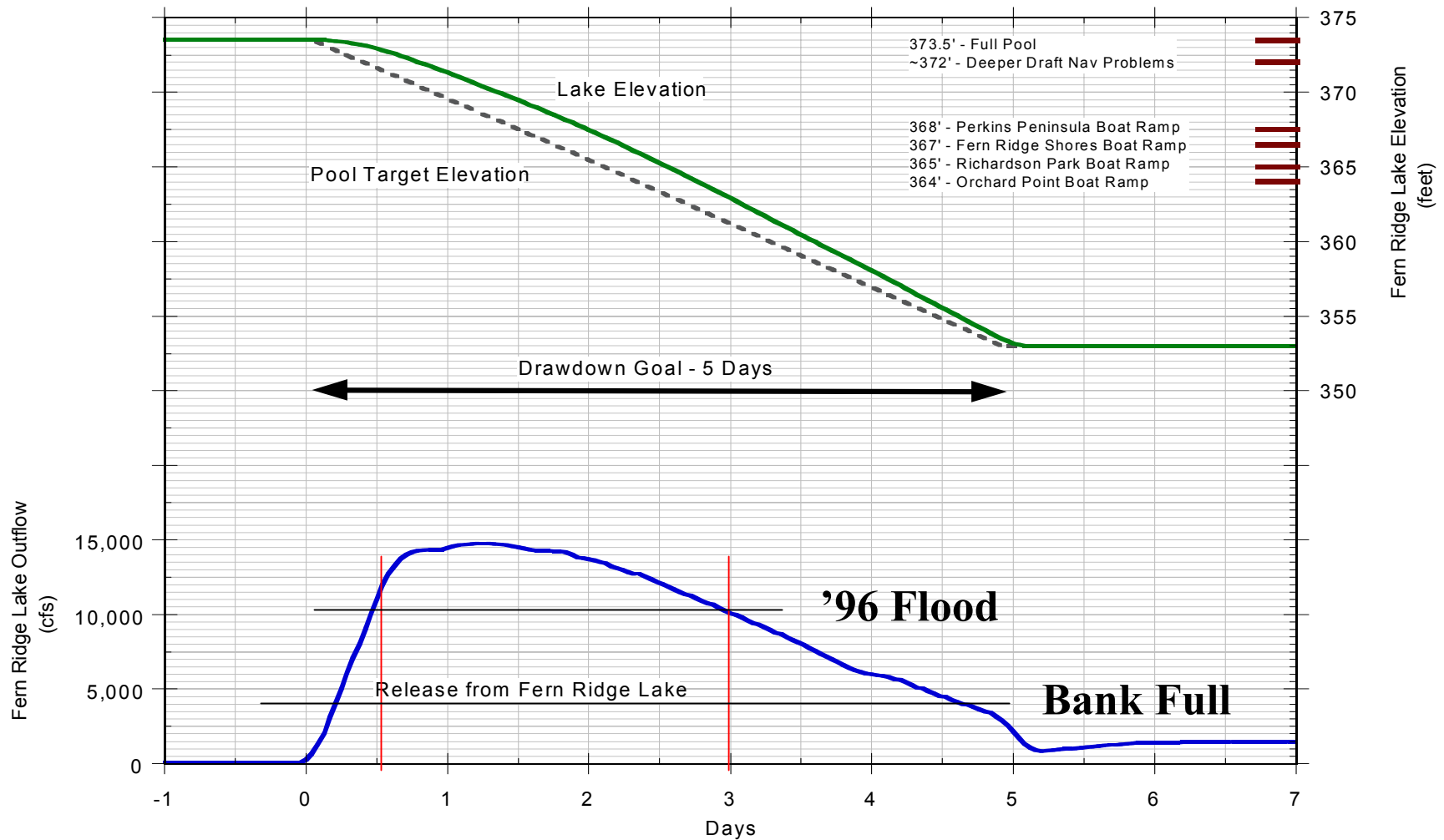
(Flood Emergency Plan)

- **Serious Concerns about Embankment Dam**
 - Increases in seepage; Settlement or depressions
 - Factor of Safety Is Below Design Standards (Design is 1.5, Estimated Between 1.2 and 1.3)
- **Notification of Emergency Response Agencies / Public**
 - Pre-Emergency Declaration on 7 May 2003 (to Agencies / National Weather Service)
 - Press Releases (8 May 2003), Public Meetings
- **Implement Drawdown Plan**
 - Continual Monitoring (Drain Flows, Turbidity, Water Levels, Visual Inspection)
 - Stockpiling Resources, Equipment
 - Emergency Declaration / Reservoir Drawdown

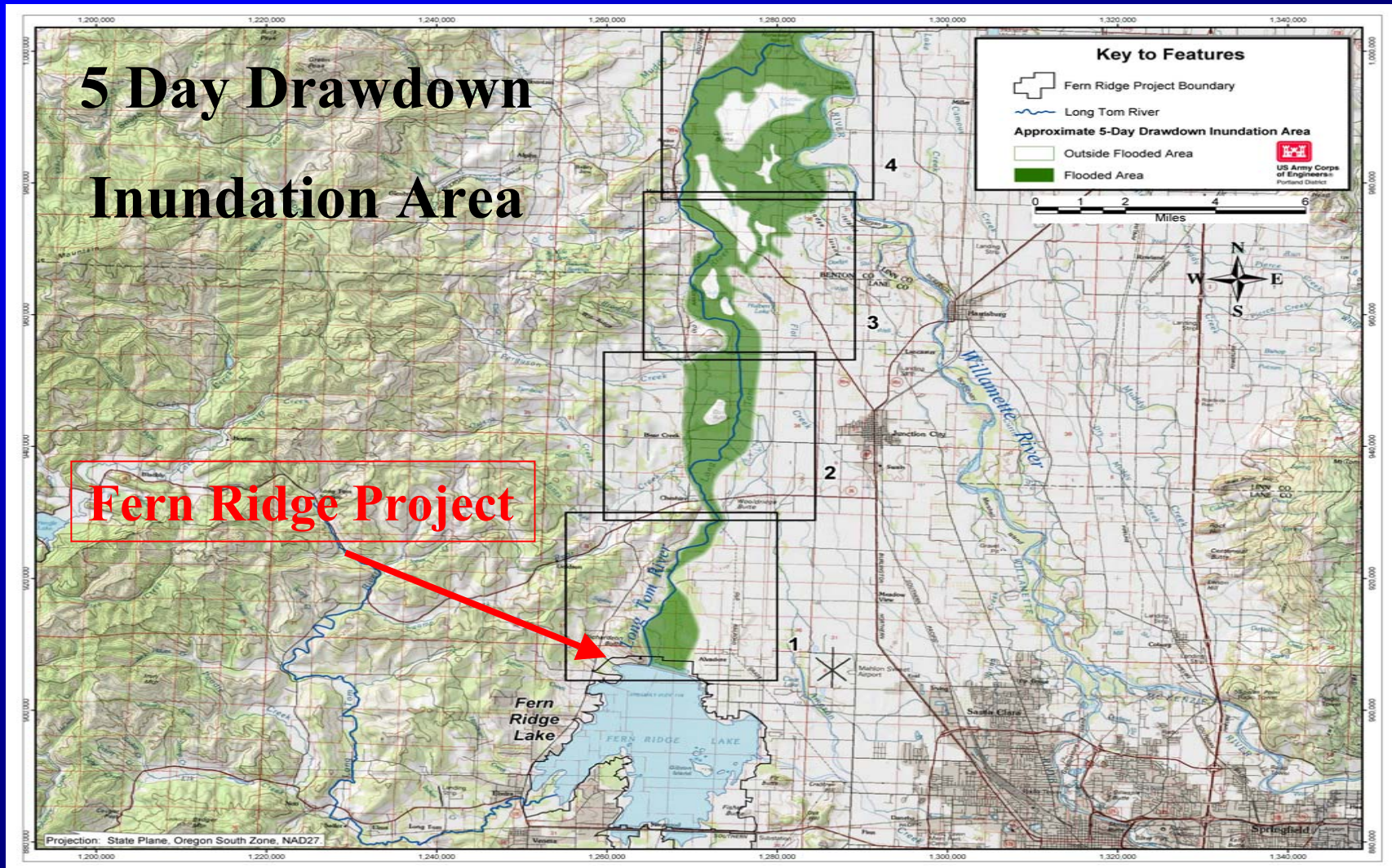
PRE-EMERGENCY CONDITION



PRE-EMERGENCY CONDITION



PRE-EMERGENCY CONDITION

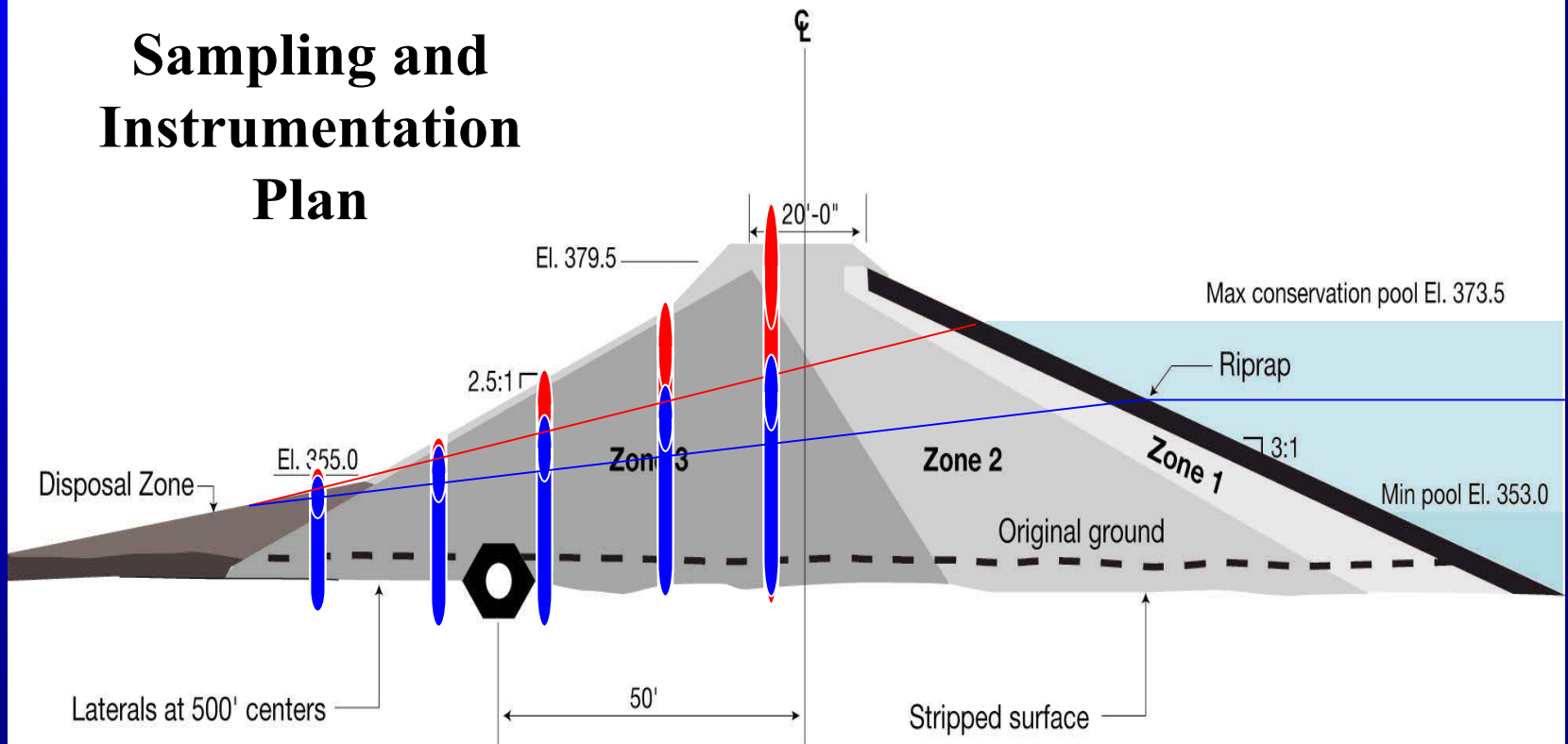


Inundation Area

INVESTIGATION

INVESTIGATION

Sampling and Instrumentation Plan



Final Stability Analysis

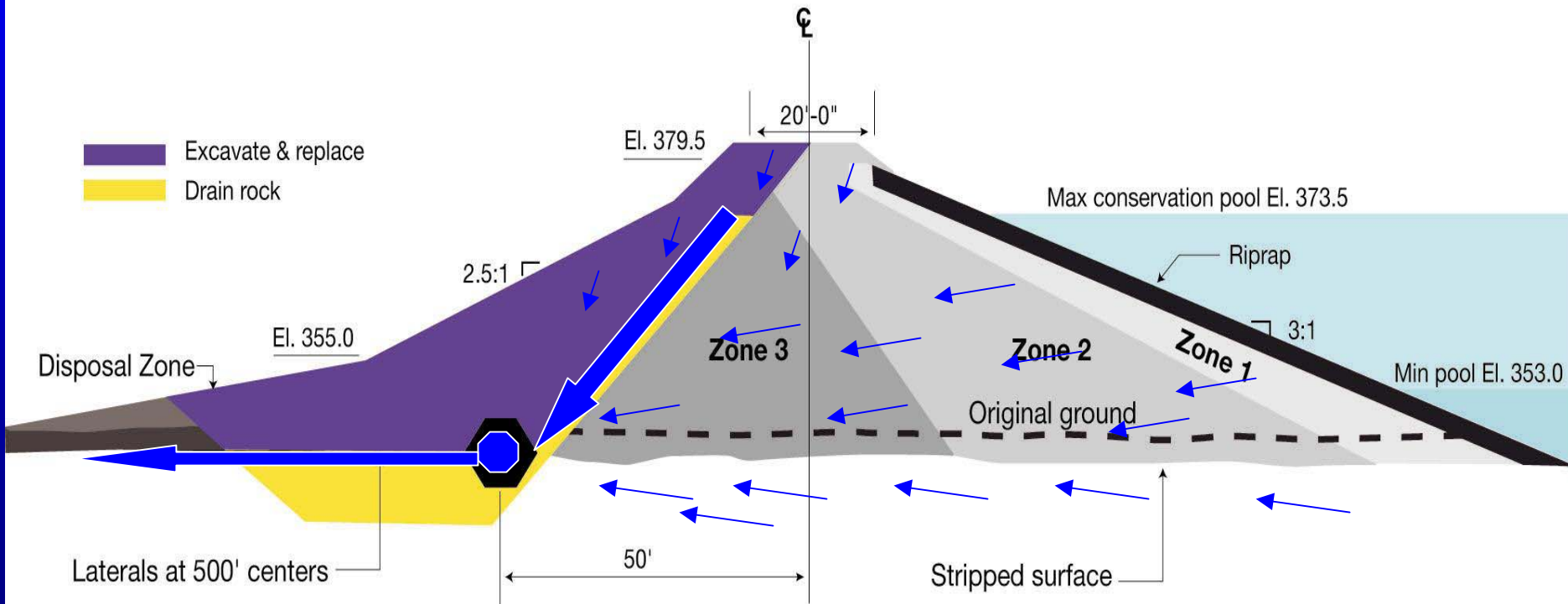
INVESTIGATION

- **Core Samples – Materials Properties**
- **New Piezometers – Water Levels (Saturation Level) in the Embankment**
- **Final Stability Analysis – Actual Factor of Safety**
- **Determine New Maximum Water Levels for Future Summer and Winter Operation of the Reservoir (Until Repairs are Completed)**
- **Completed Report in August (Posted to Website – <https://www.nwp.usace.army.mil/issues/fernridge/welcome.htm>)**

REPAIRS

REPAIRS

Fern Ridge Proposed Summer Repair



Conceptual Design

REPAIRS

- Summer Repair, Minimum Pool
 - Winter Repair?
 - Clay Turns to Gumbo When Wet
 - No Flood Protection, High Risk
- Normal Process
 - Major Maintenance Report
 - Reprogram Funding from Other Projects
 - Submit by March 2004 (Full Environmental Coordination)
 - Construction in 2006 (if Report Approved and Funded)
- Accelerated Process
 - Congressional Add
 - Construction in 2004 or 2005
(Funding Available? Known by early July of Previous Year)